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| ART UNIT | PAPER NUMBER |
|---|---|
| 2624 | |

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
|---|---|---|
| | 09/839,137 | AKASHI, AKIRA |
| **Office Action Summary** | Examiner | Art Unit | |
| | Patrick L. Edwards | 2624 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on <u>07 September 2006</u>.

2a) ☒ This action is **FINAL**.    2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) <u>1-8, 10-17, 19-27 and 34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>25 and 34</u> is/are allowed.

6) ☒ Claim(s) <u>1-8, 10-17, 19-24, 26, 27,</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All  b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

1.      The response received on 09-07-2006 has been placed in the file and was considered by the examiner. An action on the merits follows.

### *Response to Arguments*

2.      The arguments filed on 09-07-2006 have been fully considered.  A response to these arguments is provided below.

## Prior Art Rejections

*Summary of Argument:*

Applicant has amended the claims by adding, *inter alia*, that the relationship between sensing modes and embedding modes is stored in a "table memory." Specifically, applicant states that "Rhoads does not disclose or suggest at least the features of a table memory as recited in claim 1, manually selecting an image sensing mode, and referring to the table memory in accordance with the manually selected image sensing mode and automatically selecting a robustness specified by oen of a plurality of embedding modes, which corresonds to the manually selected image sensing mode." (remarks pg. 18).

*Examiner's Response:*

Applicant states that this new claim amendment does not contain new matter.  Specifically, applicant submits that "support for these amendments can be found in the original disclosure, and therefore no new matter has been added."  The examiner respectfully requests that, in future amendments, applicant specifically point out where the support for these amendments can be found in the original disclosure.  Such a practice will make for a clearer record, and will make it easier for the examiner to determine if there is indeed support for this amendment.

In this particular case, the new matter question is a close one.  The new claims recite a "table memory." Neither the original disclosure nor the original claims make reference to a "table memory." The specification does disclose that a watermarking table is stored in a memory (paragraph [0089] in conjunction with figure 8).  The examiner is guessing that this and other similar recitations to a table stored in memory is what is supposed to support the claimed term.  The phrase "table memory", however, suggests that this memory is some new kind of memory that is not found in the prior art.  The specification does not disclose any new type of memory.  The watermarking table is simply stored in a DRAM.  Thus, the term "table memory" is somewhat misleading.  However, the examiner has determined that this new limitation—when interpreted broadly—has enough support in the original disclosure to pass muster under 35 USC 112(1).  What saves this term from such a new matter rejection is the PTO's longstanding policy of giving claims their broadest reasonable interpretation.

Complying with the "broadest reasonable interpretation" standard, the term "table memory" will simply be interpreted as a memory that stores the relationship between sensing modes and embedding modes.  This is

reasonable because the table is simply a means of organizing the data that describes the relationship between the sensing and embedding means. Any data in memory that describes this relationship is therefore analogous to the claimed "table memory" because it is representing the same data that is organized in the form of a table in applicant's disclosure. If this claim were interpreted more narrowly, it would constitute new matter.

This claim interpretation is incoporated into the below rejection.

*Allowable Subject Matter*

3.      Claims 25 and 34 are allowed.

*Claim Rejections - 35 USC § 102*

4.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.      Claims 2, 11, 20, 21, 22, 24, 26, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Rhoads et al. (US 2002/0080997 A1 (now USPN 6,738,495)).

Regarding claim 11:

Rhoads discloses the following:

**a table memory which stores a relationship between a plurality of image sensing modes for setting quality of an image to be sensed in the image sensing step and a plurality of embedding modes to be used in the embedding step, each of the plurality of embedding modes having different robustness from each other, where the image quality and the robustness have an inversely proportional relationship.**

- At the outset, it should be noted that the claim interpretation discusssion from the 'response to arguments' section is incorporated herein. That said, the above limitation simply requires that there be an inversely proportional relationship between the quality of the image sensing mode and the robustness of the embedding mode. This relationship must be stored in memory. Rhoads discloses this relationship between between image sensing quality and embedding robustness (paragraph [0021]). Rhoads also discloses a system that is run on a computer (see paragraph [0018]). Thus, this relationship between image sensing

quality and watermark robustness exists within the system and must therefore be stored in a memory within that system. The "table memory" limitation is therefore met.

**a mode selection step of manually selecting one of a plurality of embedding modes to be used in said embedding step, so as to determine a robustness**

- This limitation is met by Rhoads, who discloses that a user selects between one of three watermarking modes (embedding modes) that are all different in robustness from each other (paragraph [0021]).

**an image quality selection step of referring to the table memory in accordance with the manually selected embedding mode and automatically deciding an image quality of the image to be sensed by the image sensing step in accordance with the robustness corresponding to the manually selected embedding mode**

- Again, the claim interpretation discussion in the 'response to arguments' is incorporated herein. This limitation simply requires looking at the embedding mode [that was manually selected] and automatically adjusting the sensing mode on the basis of the embedding mode. In making this decision, the method looks to the aforesaid relationship that is stored in memory. [Rhoads paragraphs [0029], [0030]: The reference describes that *the system* (i.e. automatically) adjust the compression (i.e. image quality) level based on the selected watermark intensity level.].

The following two limitations of claim 11 merely recite the actual execution of the sensing and embedding operations on the image. Rhoads discloses these limitations.

      **wherein the image sensing step comprises the step of sensing an image having the automatically selected image quality**

      **wherein the embedding step comprises the step of executing—after said image sensing step senses an image—the embedding of the predetermined data in the currently sensed image data obtained by the image sensing step in accordance with the determined robustness corresponding to the manually selected embedding mode**

- These steps are somewhat redundant to the step discussed two paragraphs above. They merely recite the execution of the selected sensing mode and embedding mode. Rhoads discloses an actual execution of both the sensing and embedding operations.

<u>Regarding claims 2 and 20</u>:

Rhoads discloses an apparatus for performing the method of claim 11, and a computer readable medium storing steps to perform the method of claim 11.

<u>Regarding claim 27</u>:

Rhoads discloses the following:

**using a table memory which stores a relationship between a plurality of image sensing modes for setting quality of an image to be sensed by the image sensing means and information indicating whether or not embedding is executed for each image sensing mode**

- As we have previously discussed, the "table memory" limitation simply means that this relationship is stored in a memory. Here, the claim requires the embedding/sensing relationship be such that embedding may or may not be executed based on the quality of the image. At paragraphs [0029]-[0031] Rhoads describes this relationship. Rhoads describes that for a given image quality, there is a limit on the strength of the watermark to be embedded. Rhoads evaluates this relationship to determine whether the embedding should be executed. And, again, Rhoads describes this relationship in the context of a system that is performed on a computer. Thus, the information on this relationship is stored in computer memory.

**a selection step of manually selecting one of a plurality of image sensing modes for setting image quality of an image to be sensed by the image sensing means**

- Rhoads, Fig. 3.

**an embedding step of embedding information as as watermark in an image**

- Rhoads paragraph [0024] and elsewhere throughout the specification.

**a determination step of referring to the table memory in accordance with the manually selected sensing mode and automatically determining whether to activate said embedding step**

- Rhoads paragraph [0029]: The reference describes that the watermark intensity will not be further increased (i.e. the embedding step at that intensity level will not be activated).

**the control step of—after the image sensing means senses an image—performing control to activate said embedding step to embed the watermark if currently sensed image data obtained in said image sensing step if said determination means determines that embedding should not be executed, control to inactivate said embedding means to prohibit embedding of information in the currently sensed image data obtained by the image sensing means**

- This limitation simply calls for activating or inactivating the embedding execution based on the sensing means. This limitation has already been discussed in the first paragaph of this rejection. Rhoads further discloses a way of controlling whether or not the embedding occurs when he says "If such threshold is reached, the system will not further increase the embedded watermark intensity." Thus, Rhoads discloses a system for controlling the embedding.

Regarding claim 21:

Rhoads discloses an apparatus for performing the method of claim 27.

Regarding dependent claims 22, 24, and 26:

Regarding clam 22, Rhoads discloses that the information includes a user name, an image sensing date, and an image recording apparatus (Rhoads paragraph [0035]).

Regarding claim 24, Rhoads et al. disclose that the embedding means comprises first embedding means for embedding information with priority given to image quality of an image in which the information is to be embedded, and second embedding means for embedding information with priority given to robustness of the information to be embedded, and means for determining one of said first and second embedding means when information is to be embedded (see Fig. 2 and paragraph [0021]: The reference describes that three watermarking modes can be selected: low, medium, and high. If the low watermarking mode is selected priority is given to the quality of the image. If the high watermarking mode is selected priority is given to the durability (i.e. robustness) of an image.).

Regarding claim 26, this claim appears to be redundant in that it recites limitations from claim 21. Assuming that this claim is not totally redundant, the limitations have still been discussed in the discussion of claim 21 above.

## *Claim Rejections - 35 USC § 103*

6.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.      Claims 1, 7, 8, 10, 16, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads (US 2002/0080997 A1 (now USPN 6,738,495)).

Regarding claim 10:

The discussion of claim 11 is incorporated herein.

Claim 10 is the same as claim 11 except that the automatic and manual operations are reversed. In other words, where claim 11 recites manual selection of an embedding mode and automatic selection of a sensing mode in accordance with the embedding mode, claim 10 recites manual selection of a sensing mode and automatic selection of an embedding mode in accordance with the sensing mode.

The Rhoads reference is equally applicable to claim 10 as it is to claim 11 mainly because of paragraphs [0023], and [0041], e.g.—which explicitly states that the order of operations can be alternated. In other words, the bulk of the Rhoads disclosure is aimed at describing an operation where image quality is adjusted on account of the embedding mode, but at least paragraphs [0023] and [0041] discloses that the alternate order is just as good.

However, because Rhoads only expressly discloses the claim 11 embodiment, he is unable to expressly disclose the limitation of **automatically deciding, in accordance with the image quality corresponding to the manually selected image sensing mode, one of a plurality of embedding modes to be used in the embedding step, each of the plurality of embedding modes having different robustness from each other**, this limitation is not anticipated by Rhoads, but rather it is obvious in view of the Rhoads disclosure. This conclusion is further supported by Rhoads disclosure that the user can manually input an image sensing mode (see Fig. 3).

Such a modification would have been obvious to PHOSITA at the time of invention. Rhoads discloses that "A trade-off must be struck between watermark durability and image fidelity." This modification would have simply allowed for an additional way of striking a balance between these two competing factors.

Regarding claims 1 and 19:

Rhoads discloses an apparatus for performing the method of claim 10, and a computer readable medium storing steps to perform the method of claim 10.

Regarding claims 7, 8, 16, and 17, Rhoads discloses that the embedding mode defines a type of watermarking represented by the predetermined data to be embedded, and that this type of watermarking is defined by a value associated with an embeddng strength of the predetermined data (see Rhoads paragraph [0022]).

8.        Claims 3-6 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoads et al. as applied to claims 1 and 10 above, and further in view of Narayanaswami et al. ( US 2003/0011684 A1). The arguments as to the relevance of Rhoads et al. as applied above are incorporated herein.

As applied to claims 3 and 12, Narayanaswami et al. disclose that the first item defines values associated with an exposure time and aperture of said apparatus (see paragraph [0034]: The reference describes that camera electronic circuitry 128 defines parameters including exposure duration (i.e. exposure time) and aperture setting (i.e. aperture of said apparatus).).

As applied to claims 4 and 13, Narayanaswami et al. disclose that the first item defines a value associated with a continuous-exposure frame count of said apparatus (see paragraph [0034]: The reference describes that camera electronic circuitry 128 defines parameters including frame number (i.e. a value associated with a continuous-exposure frame count of said apparatus).).

As applied to claims 5 and 14, Narayanaswami et al. disclose that the first item defines a value associated with image quality of a sensed image (see paragraph [0034]: The reference describes that camera electronic circuitry 128 defines parameters including image quality (e.g. high, medium, or low).).

As applied to claims 6 and 15, Narayanaswami et al. disclose that the first item defines a value associated with sensitivity with respect to an amount of light received (see paragraph [0034]: The reference describes that camera

electronic circuitry 128 defines parameters including shutter speed, which determines the amount of light received. Therefore, this value is associated with sensitivity.).

With respect to all of the above claims, Rhoads does not disclose that the image sensing modes are specifically defined as above. However, Narayanswami discloses all of these image sensing modes. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the image sensing mode Rhoads to include the specific image sensing modes discloses in Naryanswami. Such a modification would have allowed for different ways of capturing the image.

9.      Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Rhoads et al. (U.S. Patent Application Publication US 2002/0080997 A1), as applied to claim 21, in combination with Isnardi et al. (U.S. Patent No. 6,037,984 A).

Claim 23 calls for selectively embedding either a visible watermark or an invisible watermark.

This feature is absent from Rhoads et al. However, Isnardi et al., in the same field of endeavor of image processing and the same problem solving area of digital watermarking, discloses selectively embedding a visible or invisible watermark (see column 2, lines 43-46: The reference describes that the magnitude of the watermark values and their placement in the DCT array can be adjusted to selectively produce a visible or invisible watermark.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Rhoads et al. by adding the ability to selectively embed either a visible watermark or an invisible watermark as taught by Isnardi et al. because such a process allows for the system to selectively watermark an image with the best type of watermark for a specific application.

*Conclusion*

10.     **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11.      Any inquiry concerning this communication or earlier communications from the examiner should be
directed to Patrick L Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached
on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta
can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding
is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information
Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR
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Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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